8 Gender Issues in PTSD with Comorbid Mental Health Disorders

SUSAN M. ORSILLO
SHEELA RAJA
CHARITY HAMMOND

Posttraumatic stress disorder (PTSD) is associated with a significant psychological, social, and financial burden for the men and women who experience the disorder, their friends and family, and for society as a whole (Greenberg et al., 1999; Kulka et al., 1990; Murray & Lopez, 1996). However, PTSD is rarely the only psychological disorder present among individuals with a history of exposure to a traumatic event. Data from the United States National Comorbidity Survey (NCS) established that among individuals with a lifetime history of PTSD, 88.3% of men and 79.0% of women also reported a lifetime history of at least one other disorder (Kessler et al., 1999). Anxiety, mood, somatoform, and personality disorders frequently co-occur with PTSD, impacting virtually every aspect of the disorder. Research has demonstrated that comorbidity is related to a chronic course of PTSD (Blanchard, Buckley, Hickling, & Taylor, 1998; Breslau & Davis, 1992; McFarlane & Papay, 1992), more severe psychopathology related to the comorbid conditions (Sautter et al., 1999; Shalev et al., 1998; Zimmerman & Mattia, 1999a), and significantly more functional impairment or disability (Mollica et al., 1999; Shalev et al., 1998). Comorbid conditions often mask the presence of PTSD symptoms, decreasing the likelihood that the diagnosis is accurately identified and treated (e.g., Mueser et al., 1998; Zimmerman & Mattia, 1999b). Thus, it is critical to attend to issues of comorbidity with PTSD when assessing and treating trauma-exposed individuals.

Gender issues related to comorbidity with PTSD have scarcely been considered. Yet, gender-specific patterns of comorbidity are likely, given the demonstrated gender differences in the prevalence and patterns of psycho-

pathology in the population. Significant gender differences in the prevalence of several specific psychological disorders were found in the NCS (Kessler, 1998). Although a number of theories have been advanced to explain these gender differences, including biological differences, differential socialization, and discrimination in assessment and diagnostic nomenclature, the implications for assessment and treatment are still not fully understood.

Our purpose in this chapter is to examine the nature of comorbidity of psychological disorders with PTSD, with a specific emphasis on potential gender differences. Because substance use and somatoform disorders are covered in separate chapters, studies focusing primarily on these disorders are excluded from our review and discussion. We first briefly consider why gender study is important and relevant to the study of comorbidity with PTSD. Next we provide an overview of the literature to date on PTSD and comorbid conditions by gender. Given the relatively sparse literature on gender and comorbidity with PTSD, we provide some recommendations for future research, paying significant attention to the complex issues that potentially obscure the nosological and clinical implications of the cumulative literature. Finally, we discuss potential treatment implications.

GENDER AND PSYCHOPATHOLOGY

Significant gender differences in the prevalence of psychological disorders have been consistently documented in clinical practice and research. An examination of these differences and the theories that have been advanced to explain them provides a foundation for exploring the role of gender in PTSD comorbidity. Interestingly, recent epidemiological studies confirm that men and women are equally likely to be diagnosed with a psychological disorder (Kessler, 1998). In other words, men and women do not differ in their probability of being diagnosed with some psychological condition. However, there are differences in the pattern of *specific* disorders across genders. In particular, women are more likely than men to be diagnosed with mood and anxiety disorders, whereas men are much more likely to be diagnosed with substance use, conduct disorders, and adult antisocial behavior (Kessler, 1998).

Several theories have been advanced to attempt to explain these gender differences. Sociocultural influences have been portrayed as potentially important in understanding the development of panic disorder and agoraphobia. Barlow (1988) proposed that the perception of stressful events as unpredictable and uncontrollable is a psychological vulnerability that increases an individual's risk for developing panic disorder. This perceptual style is likely based on a person's learning history and direct experience with stressors. Traditional sex roles may influence perception of, and expe-

rience with, stressors (Barlow, 1988). Men are traditionally socialized to be independent, masterful, and assertive, which likely increases their perception of controllability, whereas women are expected to be more passive and dependent, behavioral patterns that lead to the perception of uncontrollability over one's environment. Coping styles that are consistent with traditional sex roles may also influence the development of agoraphobia. Barlow proposed that the incidence of panic symptoms may be similar among men and women, but that the genders may differ in their primary method of coping with these experiences. Specifically, Barlow argued that perhaps it is more culturally acceptable for women to cope by avoiding situations that elicit panic, which increases their risk of developing agoraphobia. In contrast, men may be more likely to use drugs or alcohol as a mean of avoiding their internal experiences, which increases their risk for substance abuse rather than an anxiety disorder. Data support the notion that parenting styles encouraging stereotypical gender roles are significantly related to the later development of anxiety disorders (Chorpita & Barlow, 1998).

Physiological factors have also been identified as potentially important in explaining gender differences in the prevalence of various psychological disorders. Based on a recent review of the literature, Merikangas and Pollock (2000) argued that the most compelling explanation for higher rates of anxiety disorders among women is that women have higher levels of arousal, psychophysiological response to stress, and somatic stress, as well as a greater awareness of somatic anxiety than men. Fluctuations in female reproductive hormones across the lifespan are also thought to impact on the underlying vulnerability for anxiety disorders in women. For instance, anxiety in response to a biological challenge (carbon dioxide intake) has been shown to be significantly stronger in the early follicular phase than in the midluteal phase for women with panic disorder (Perna, Brambilla, Arancio, & Bellodi, 1995). Furthermore, women with generalized anxiety disorder and premenstrual syndrome reported a significant increase in their anxiety symptoms during the premenstrual phase of their cycle (McLeod, Hoehn-Saric, Foster, & Hipsley, 1993). Panic symptoms also seemed to be linked to hormonal changes associated with pregnancy. For instance, a majority of women with preexisting panic disorder reported an improvement in their symptoms during pregnancy (Villeponteaux, Lydiard, Laraia, Stuart, & Ballenger, 1992), but a significant subgroup is at risk for a return of symptoms during the postpartum period (Cohen, Sichel, Dimmock, & Rosenbaum, 1994a, 1994b). Clearly, more research is needed to further elucidate how these hormonally mediated neurobiological changes impact on increased risk of development of anxiety disorders in women (Merikangas & Pollock, 2000).

There have also been a number of theories directed at explaining the higher rates of mood disorders, particularly major depressive disorder,

among women. Research has indicated that gender differences in depression do not seem to emerge until after the age of 15 (Nolen-Hoeksema & Girgus, 1994), suggesting that this developmental stage may include important biological or sociological events related to the differential development of depression. While biological, and particularly hormonal, etiologies have been examined as potential contributory factors, their importance has not been substantiated (Hankin & Abramson, 1999; Strickland, 1992).

Stronger evidence exists implicating cognitive factors in the differential rate of depression between the genders. Women seem to be more likely to develop a ruminative response style that increases their vulnerability to becoming depressed (Hankin & Abramson, 1999). Also, the value women place on intimate relationships might also put them at risk when disruptions in the relationship occur (Fincham, Beach, Harold, & Osborne, 1997; Hammen, Marks, Mayo, & DeMayo, 1985), although some data suggest that divorce presents a higher risk of depression for men (cf. Bruce & Kim, 1992).

However, these gender differences in cognitive style likely develop among girls before adolescence and thus do not fully explain the gender shift that occurs at this developmental stage. Nolen-Hoeksema and Girgus (1994) reviewed the existing literature and concluded that these risk factors only lead to depression in the face of gender-related challenges that commonly begin in early adolescence. Specifically, as a result of their gender, girls and women are more likely to be confronted with abuse, harassment, restrictions on their choice, devaluation (Nolen-Hoeksema & Girgus, 1994), negative events in their families (Hankin & Abramson, 1999), and discrimination and stress related to caretaking of children and older relatives (Strickland, 1992). The differential risk by gender for direct experience with these negative, stressful events seems to be a strong explanatory factor for the difference in prevalence of depression among men and women.

There is also evidence that gender is linked to substance use (see Stewart, Ouimette, & Brown, Chapter 9, this volume) and personality disorders. For instance, Paris (1997) argued that the behavioral differences in the diagnostic criteria of antisocial and borderline personality disorders are influenced by traditional gender roles. Hamburger, Lilienfeld, and Hogben (1996) demonstrated that gender moderates the relationship between psychopathy and antisocial and histrionic personality disorders, such that psychopathic males exhibit antisocial patterns, whereas psychopathic females exhibit histrionic patterns.

In summary, gender seems to play a significant role in the development of general psychopathology. Thus, it is reasonable to expect that men and women seeking treatment for PTSD may differ significantly in the their specific comorbid presentation. Given the documented impact of comorbidity with PTSD on symptom severity, course, and functional impairment, a

better knowledge and understanding of these potential gender differences may inform and improve treatment delivery. Thus, we provide a review of the literature on comorbidity and PTSD, and explore what is currently known about gender specific patterns.

PSYCHIATRIC COMORBIDITY

Although a number of studies describe the psychological symptoms and disorders that often develop following exposure to a trauma, far fewer studies on the specific comorbidity between PTSD and other psychological disorders have been conducted. Furthermore, the findings that have emerged from controlled research are influenced by a variety of important factors, such as the nature of the traumatic event experienced by individuals in the sample, length of time that has passed since the trauma, type of assessment instrument used, and a number of other methodological variations (discussed more fully later) that make it difficult to generalize findings beyond a specific sample. As a result, prevalence rates of some comorbid disorders vary widely from study to study. However, despite these issues, some patterns are still fairly consistent across most studies, and some interesting theories have been advanced to potentially explain these relationships. We review some of the more consistent findings based on controlled studies to elucidate typical patterns of comorbidity and briefly discuss the conceptual relationship between these disorders and PTSD. In our review, we only include estimates of comorbidity that have been shown to be significantly related to PTSD diagnostic status. Furthermore, because we are most interested in provided gender-specific rates of psychopathology, we have excluded any studies that do not report prevalence rates by gender.

For most disorders, we report rates of both current and lifetime comorbidity. Current comorbidity typically refers to the current co-occurrence of two psychological disorders, whereas lifetime comorbidity usually reflects a history of additional disorders among individuals who currently meet criteria for the index disorder (e.g., PTSD). While rates of current comorbidity may provide the most clinically relevant information for clinicians working with PTSD, lifetime comorbidity also has implications for the course of symptoms over time among individuals who experience traumatic events.

Mood Disorders

Across studies of varying design, mood disorders have been found to co-occur quite commonly among individuals with a diagnosis of PTSD. Although little is known about the interrelationship between PTSD and depression/dysthymia, it has been suggested that these disorders may develop

as a complicated grieving response to the loss associated with experiencing a traumatic event (Deering, Glover, Ready, Eddleman, & Alarcon, 1996). Major depressive disorder (MDD) is the most commonly occurring problem, with current rates of 17–23% among women (Cascardi, O'Leary, & Schlee, 1999; Kulka et al., 1988) and 10–55% among men (Gibson et al., 1999; Green, Grace, Lindy, Gleser, & Leonard, 1990; Green, Lindy, Grace, & Gleser, 1989; Hryvniak, 1989; Kulka et al., 1988; McFarlane & Papay, 1992; Orsillo, Weathers, et al., 1996). Lifetime rates of comorbid depression range from 42 to 49% among women (e.g., Breslau, Davis, Peterson, & Schulz, 1997; Kessler et al., 1995; Kulka et al., 1988) and 26 to 70% (Engdahl, Speed, Eberly, & Schwartz, 1991; Gibson et al., 1999; Kessler et al., 1995; Kulka et al., 1988; Orsillo, Weathers, et al., 1996) among men diagnosed with PTSD.

One issue of concern regarding the comorbidity of PTSD and MDD is that the significant symptom overlap between the two disorders may artificially inflate rates of comorbidity. As defined in DSM-IV (American Psychiatric Association, 1994), five of the nine depressive symptoms are necessary to meet Criterion A for MDD. Three of these nine symptoms (diminished interest in activities, difficulty sleeping, and difficulty concentrating) are also symptoms of PTSD. However, research has discounted the influence of these shared symptoms and has confirmed that the presence of both disorders reflects two unique symptom patterns (Blanchard et al., 1998; Orsillo, Litz, Weathers, Steinberg, & Keane, 1994).

Dysthymia is also fairly prevalent, with approximately 23–33% of women (Kessler et al., 1995; Kulka et al., 1988) and 21–29% of men (Gibson et al., 1999; Kessler et al., 1995; Kulka et al., 1988) with PTSD meeting criteria at some point during their lifetime. Although bipolar disorder co-occurs less frequently with PTSD than the other mood disorders, the prevalence rate is still significantly higher among individuals with PTSD compared to those without PTSD. Specifically, current rates of manic episodes are estimated to be about 4% among men (Gibson et al., 1999; Kulka et al., 1988) and 2.5% among women (Kulka et al., 1998) with PTSD. Lifetime rates of comorbid manic episodes range from 3 to 6% among women (Kessler et al., 1995; Kulka et al., 1988) and 6 to 12% among men (Gibson et al., 1999; Kessler et al., 1995; Kulka et al., 1988).

Anxiety Disorders

Individuals with PTSD also commonly meet criteria for additional anxiety disorders, including generalized anxiety disorder (GAD), social phobia, panic disorder, obsessive–compulsive disorder (OCD), and specific phobia. Many of these anxiety disorders have been functionally linked with PTSD, underscoring their potential importance in the development of an adequate treatment plan.

For example, Roemer (1997) proposed that GAD and PTSD are functionally related, in that worry, the primary feature of GAD, serves to suppress emotional reactions to internal and external trauma-related cues. It has been documented that individuals with GAD worry to distract themselves from emotional distress and physiological arousal (e.g., Borkovec & Roemer, 1995). Thus, the chronic worry associated with GAD may develop as a coping strategy among individuals with PTSD used to manage symptoms of intrusion and arousal.

Although the data currently supporting this theory are preliminary, several studies have demonstrated that GAD co-occurs with PTSD at a rate of about 38% among women (Kulka et al., 1988) and 7–20 % among men (e.g., Engdahl et al., 1991; Kulka et al., 1988; Orsillo, Weathers, et al., 1996). Lifetime rates of GAD range from 5 to 15% among women (e.g., Breslau et al., 1997; Kessler et al., 1995; Kulka et al., 1988). Estimates ranging from 16 to 94% have been found among male samples (Engdahl et al., 1991; Gibson et al., 1999; Kessler et al., 1995; Kulka et al., 1988), making it difficult to determine the specific prevalence of this comorbidity among men. Significant changes in the diagnostic criteria of GAD over the last decade and differential application of exclusionary criteria across studies may account for some of this variability. Current diagnostic criteria mandate that GAD should not be diagnosed as a comorbid condition with PTSD if the anxiety/worry occurs exclusively during the course of PTSD (American Psychiatric Association, 1994). It may be that this distinction is harder to make with male compared to female patients.

Social phobia has also been conceptually linked with interpersonal, trauma-related PTSD (Orsillo, Heimberg, Juster, & Garrett, 1996; Orsillo, 1997). It is common for victims of interpersonal traumas, such as rape, domestic violence, and combat, to experience shame about their involvement in the traumatic experience and to be rejected or blamed by others. Shame and interpersonal rejection have also been theoretically linked to the development of social phobia (Barlow, 1988; Buss, 1980), raising the possibility of a shared etiology for the two disorders. Preliminary research supports the hypothesis that trauma-related shame and negative responses from others play a significant role in the development of social phobia among individuals with PTSD (Orsillo, Heimberg, et al., 1996). While few studies have directly assessed the comorbidity of social phobia and PTSD, lifetime rates of 26–28% have been found among women with PTSD (Breslau et al., 1997; Kessler et al., 1995), and 17–28% among men (Kessler et al., 1995; Orsillo, Weathers, et al., 1996).

It has been theorized that panic disorder develops comorbidly with PTSD through classical conditioning (Falsetti, Resnick, Dansky, Lydiard, & Kilpatrick, 1995). Falsetti and her colleagues suggest that unconditioned fear responses to the traumatic event can pair with internal trauma-related cues, leading the individual to develop fear and avoidance of the physical

sensations associated with the fear response. When the individual develops both a generalized fear of having panic attacks, and fear and avoidance of specific trauma-related cues, then comorbid diagnoses of PTSD and panic disorder should be assigned. Studies suggest that panic disorder co-occurs with PTSD in 13% of women (Kulka et al., 1988) and 5% of men (Kulka et al., 1988), with lifetime rates of 7–21% among women (Breslau et al., 1997; Kessler et al., 1995; Kulka et al., 1988) and 7–28% in men (Kessler et al., 1995; Kulka et al., 1988; Orsillo, Weathers, et al., 1996).

De Silva and Marks (1999) conceptually linked PTSD and OCD, presenting 8 cases in which a severe traumatic experience led to the development of OCD in addition to full-blown PTSD or significant PTSD symptomatology. In some, but not all, of the cases, the content of the obsessions and compulsions was directly linked to the trauma. For instance, a victim of sexual assault, who reported feeling "dirty" following the attack, developed concerns about contamination and ritualistic cleaning behavior of her clothes and apartment. Current rates of OCD have been estimated at about 8% among women (Kulka et al., 1988) and 9–13% among men (e.g., Gibson et al., 1999; Kulka et al., 1988; McFarlane & Papay, 1992) diagnosed with PTSD. Lifetime rates are approximately 13% among women (Kulka et al, 1988) and 6–10% among men (Kulka et al., 1988; Orsillo, Weathers, et al., 1996).

Specific phobia commonly co-occurs with PTSD, despite diagnostic criteria suggesting that a comorbid diagnosis should not be assigned if the anxiety and fear associated with the phobic object are better accounted for by the PTSD diagnosis (American Psychiatric Association, 1994). Thirty-six percent of women (Breslau et al., 1997) and 12–31% of men with PTSD also meet criteria for specific phobia during their lifetime (Kessler et al., 1995; Orsillo, Weathers, et al., 1996).

Additional Disorders

While several other individual disorders have been linked to trauma exposure in men and women, comorbidity studies have primarily focused on rates of additional anxiety and mood disorders. Furthermore, whereas the prevalence of some additional comorbid conditions, such as schizophrenia, antisocial personality disorder (ASPD), and eating disorders, have been empirically derived, they have been primarily examined in gender-specific samples. For instance, current comorbid rates of schizophrenia from 10 to 16% have been found among men diagnosed with PTSD (Gibson et al., 1999; Hryvniak, 1989). However, the rates among women are unknown. On the other hand, a history of eating disorders has been found to be relatively common (25%) among females with PTSD (e.g., Lipschitz, Winegar, Hartnick, Foote, & Southwick, 1999), whereas rates for men have not been reported. While current rates of ASPD have been found to range from 12 to

15% among male veterans with PTSD (e.g., Orsillo, Weathers, et al., 1996; Southwick, Yehuda, & Giller 1993), similar rates have been found among veterans without PTSD (e.g., Orsillo, Weathers, et al., 1996). Furthermore, the association between ASPD and PTSD among women has not been established.

Summary

In summary, a number of studies have confirmed significant comorbidity, particularly between PTSD, mood, and other anxiety disorders. Although specific prevalence rates vary widely, some emergent patterns can potentially inform the assessment and treatment of traumatized individuals. Of particular note, for most disorders, the prevalence rates did not differ dramatically between men and women. As discussed earlier, in nontraumatized samples, women are more likely to be diagnosed with mood and anxiety disorders. However, in the studies reviewed earlier, men and women with PTSD had similar rates of comorbid dysthymia, social phobia, lifetime panic disorder, OCD, and specific phobia. With regard to MDD and GAD, it is difficult to draw conclusions about potential gender differences given the wide variability in the prevalence rates found across samples of men. However, a preliminary analysis of this literature suggests that the pattern and form of comorbid psychopathology may be quite similar for men and women with PTSD.

Unfortunately, the majority of the studies we reviewed did not allow direct comparisons between genders, and comparing prevalence rates by gender across studies should be done with caution given the significant methodological variations across studies (e.g., trauma type, method of deriving diagnosis, clinical vs. community population). Thus, studies that directly compare rates between men and women within a particular sample are needed to provide accurate gender-specific information. Among the studies that we reviewed for this chapter, including a non-PTSD comparison group, only three of them statistically compared comorbidity patterns across the genders (Helzer, Robins, & McEvoy, 1987; Hubbard, Realmutto, Northwood, & Masten, 1995; Shalev et al., 1998). However, an analysis of these three studies, and a close examination of studies that include prevalence rates by gender, without statistically testing gender differences, may still be informative to clinicians treating individuals with PTSD.

GENDER COMPARISONS OF COMORBIDITY WITH PTSD

The three studies that directly compared comorbidity patterns among men and women with PTSD revealed minimal gender differences. Within a community sample, Helzer et al. (1987) found that women with PTSD had a

greater likelihood of being diagnosed with comorbid panic disorder and simple phobia than men. The only gender difference in comorbidity with PTSD found in a small sample of 59 Cambodian American youth who survived civil conflict was that only women with PTSD experienced increased prevalence of somatoform pain disorder compared to controls (Hubbard et al., 1995). Finally, no gender differences in comorbidity of depression were evident in a sample of 211 Israeli ER patients with PTSD (Shalev et al., 1998). While these studies are valuable in that they directly compare comorbidity across gender, their results are severely limited due to changes in diagnostic criteria because of the large community study conducted (Helzer et al., 1987), the specialized nature of the samples (e.g., Hubbard et al., 1995; Shalev et al., 1998), and the limited range of comorbid diagnoses assessed (Shalev et al., 1998).

Several other studies, including large epidemiological surveys, have included men and women in their samples but have not statistically compared the genders. For example, Kessler and colleagues (1995) examined the comorbid disorders reported by men and women with PTSD derived from the NCS. In contrast to findings in the general population, men and women with PTSD did not differ in their likelihood of being assigned a comorbid diagnosis of a depressive mood disorder. Specifically, 48% of men and 49% of women with PTSD were also assigned a lifetime history of depression, and 21% of men and 23% of women with PTSD were assigned a lifetime history of dysthymia. In contrast, there did seem to be gender differences with regard to the presence of manic episodes among individuals with PTSD. Interestingly, men with PTSD were assigned a history of mania at twice the rate of women with PTSD (12% vs. 6%), whereas in the general population, no gender difference in prevalence was apparent (Kessler et al., 1998).

The absence of a gender difference in depressive disorders among trauma-exposed individuals with PTSD is striking given the consistent finding over time that adult women are much more likely to be at risk for the development of depression. If replicated, this finding lends significant support to the proposed etiological role of stressful and traumatic life events in the development of depression (e.g., Hankin & Abramson, 1999; Nolen-Hoeksema & Girgus, 1994; Strickland, 1992).

Consistent with findings from the general population, women with PTSD were more likely to be assigned a lifetime diagnosis of panic disorder (men = 7%, women = 13%) and agoraphobia (men = 16%, women = 22%) than men with PTSD. However, in contrast to general population findings (Kessler et al., 1994), rates of other anxiety disorders were roughly comparable across genders in the PTSD sample.

Men with PTSD were more likely to report lifetime histories of conduct disorder compared to women (men = 43%, women = 15%; Kessler et al., 1995), which is consistent with gender patterns in the general commu-

nity (Kessler et al., 1994). However, conduct disorder appeared to be linked more strongly to the traumatic event for women than for men. Specifically, men with conduct disorder were less likely to experience a traumatic event before the onset of their conduct disorder symptoms, whereas women were more likely to develop conduct disorder posttrauma (Kessler et al., 1995).

The National Vietnam Veterans Readjustment Survey (NVVRS) conducted over 3,000 interviews with male and female veterans of the Vietnam Era (Kulka et al., 1988). Again, direct gender comparisons have not been statistically examined in this sample, but the data reveal certain patterns. Interestingly, some gender differences in this sample are consistent with findings from the community PTSD sample, and others are not. For example, in contrast to women with PTSD in the community, women in this military sample were more likely than men to have been assigned an additional diagnosis of depression both within the past 6 months (men = 16%, women = 23%) and over the course of their lifetime (men = 26%, women = 42%). Dysthymia was also more prevalent as a comorbid diagnosis for women (men = 21%, women = 33%). Interestingly, in contrast to population estimates (Kessler et al., 1994), but consistent with the PTSD subsample of the NCS study (Kessler et al., 1995), male veterans with PTSD were more likely than female veterans to have experienced a manic episode in the past 6 months (men = 4%, women = 3%) and within their lifetime (men = 6%, women = 3%) (Kulka et al., 1988).

With regard to the anxiety disorders, women with PTSD were more likely to have been assigned a diagnosis of panic disorder with the past 6 months (men = 5%, women = 13%) and over the course of their lifetime (men = 8%, women = 21%) (Kulka et al., 1988). Rates of GAD were roughly comparable across genders, with about 20% of both men and women being assigned a diagnosis within the past 6 months, and 44% of men and 38% of women carrying a lifetime diagnosis (Kulka et al., 1988).

It is difficult to draw any specific conclusions about gender differences in the specific patterns of comorbidity that occur with PTSD. More research is needed to determine whether men and women with PTSD differ in their likelihood of presenting with an additional anxiety disorder. Both studies described here suggest that women are more likely to present with an additional diagnosis of panic disorder, underscoring the importance of considering this diagnosis when treating women with PTSD. More information is needed to determine potential gender differences in the prevalence of the other anxiety disorders.

With regard to mood disorders, in both studies reviewed, men were more likely to have manic experiences than women, a pattern that is inconsistent with prevalence findings in the general population. One possibility is that symptoms of hypervigilance and arousal may be misattributed to mania in men with PTSD. However, more research is needed to determine potential etiological and treatment implications of this pattern.

In the nonmilitary sample, men and women with PTSD did not appreciably differ in their rates of comorbid depression and dysthymia. This findings needs to be replicated and examined statistically. However, if the finding remains consistent, it may have important implications for understanding the etiology of the two classes of disorders. One possibility is that depressed men are more at risk to become victims of traumatic events and/or to develop PTSD in response to trauma exposure. Data from the NCS confirm that whereas both men and women with a history of major depression are at heightened risk for developing PTSD, the risk is greater for men (Kessler et al., 1999). Another possible explanation for the lack of a gender differences in comorbid depression, briefly discussed earlier, is that both depression and PTSD develop as the result of trauma exposure. Research is needed to explore more fully these hypotheses and to elucidate their treatment implications. Furthermore, additional research is needed to determine why this pattern did not emerge within the military sample. Nonetheless, clinicians should be aware that in both the men and women they treat with PTSD, depression will likely be a prominent part of the presenting symptom picture.

RESEARCH IMPLICATIONS

Although a multitude of studies have examined additional disorders associated with PTSD, the research on gender, comorbidity, and PTSD thus far is significantly limited. Comorbidity, a complex issue to study, is often examined in a cursory manner. A number of issues need to be addressed in future research on this topic if the results are to be used in a way that can inform treatment.

Inclusion of Women in Studies

The majority of studies directed at comorbidity and PTSD include only male participants, and few studies statistically compare comorbidity rates between the genders. Because so few studies have included men and women, it is difficult to determine if the same patterns of comorbidity apply to both genders.

Type of Trauma

A related issue is that, in general, women experience different types of trauma than men. Women are more likely to be exposed to rape, sexual molestation, and childhood parental neglect and physical abuse, whereas men are more likely to be exposed to life-threatening accidents, fires, floods, natural disasters, combat, physical attack, or the injury or death of another

(Kessler et al., 1995). These qualitative differences in the nature of the traumas experienced likely impact on the symptoms reported by men compared to women (Deering et al., 1996). For instance, there is some evidence that GAD symptoms are associated with most types of trauma, panic symptoms may be linked to unpredictable and sudden events (e.g., rape), and somatic symptoms may be the result of physically brutal events (Deering et al., 1996). The potential influence of trauma type on gender and comorbidity is apparent in the comparison of the military and nonmilitary samples described earlier.

Use of an Appropriate Control Group

The studies reviewed in this chapter compare individuals with and without PTSD on rates of comorbid psychopathology to determine if the high rates of additional disorders are specifically due to PTSD. However, comparisons with other patient groups could be helpful in determining if the rates and patterns of comorbidity among individuals with PTSD are unique in any way to this population. Overall rates of comorbidity with PTSD do not seem to be particularly higher than rates of comorbidity with most other psychological disorders (Kessler et al., 1994). However, there may be differences in comorbidity patterns that have thus far not been studied. Research in this area could inform our understanding and treatment of the nature of posttrauma psychopathology.

Coverage of Disorders

It is uncommon for studies of comorbidity with PTSD to include the full range of Axis I and II disorders in their assessment. Often, the decision about what disorders to include in the assessment is guided by previous findings. For instance, since depression is frequently found to be comorbid with PTSD, most studies include depression in their assessment. Whereas this approach builds on preexisting findings, it may unintentionally bias the conclusions drawn from the literature. In other words, it is difficult to know if disorders such as avoidant personality disorder or social phobia infrequently present with PTSD, or if they are simply not assessed.

Sample

The results of studies on comorbidity are likely to be highly influenced by whether the sample is drawn from a clinical setting or the community. Epidemiological studies are generally considered the best design to provide accurate estimates of comorbidity with good generalizability. However, diagnoses in these studies are typically made by laypersons, who may inaccurately label transient responses to internal and external stressors as psy-

chological disorders (Regier et al., 1998). Furthermore, in order to make predictions about course and prognosis, and to choose appropriate interventions, we are most interested in how comorbidity occurs within a clinical or treatment-seeking sample. Clinical samples assessed in comorbidity studies to date have not always been representative of the general PTSD population (e.g., samples of inpatient adolescents, ER patients, male inmates) and, as a result, may vary widely in reported levels of psychological distress. For example, inpatient veterans (e.g., Hryvniak, 1989) may be lower functioning and suffer from more comorbid disorders than non-hospitalized PTSD victims. Thus, carefully designed clinical studies are needed to best inform mental health professionals about the nature of comorbidity likely to be present among patients with PTSD.

Careful Consideration of the Onset of Disorders

In order to understand the clinical and theoretical significance of comorbidity as it relates to PTSD, research that elucidates the temporal pattern of comorbidity is needed. Many of the theories on the comorbidity of PTSD and other disorders suggest that the comorbid disorders develop as a result of exposure to the traumatic event (e.g., Deering et al., 1996; De Silva & Marks, 1999; Falsetti et al., 1995; Orsillo, 1997; Roemer, 1997). However, several studies have revealed that preexisting psychopathology increases an individual's risk for developing PTSD (Green et al., 1990; Kessler et al., 1999; Mirza, Bhadrinath, Goodyer, & Gilmour, 1998).

Examining the onset of comorbid conditions is a particularly relevant gender issue. The comorbid disorders that frequently predate the development of PTSD, depression, and other anxiety disorders are consistently more prevalent among women (e.g., Kessler et al., 1994). Furthermore, there is some evidence that preexisting disorders differentially increase risk for developing PTSD for men compared to women. For instance, within the NCS sample, Kessler et al., (1999) found that panic disorder was a significant risk factor for developing PTSD for men but not for women. Furthermore, within a sample of individuals exposed to a mass shooting, a history of predisaster diagnosis (excluding PTSD) significantly predicted the development of PTSD for women but not for men (North, Smith, & Spitznagel, 1994).

To complicate an already complex picture, gender and onset of comorbid disorders may be further influenced by the relationship of type of trauma and gender, as discussed earlier. The onset of a traumatic event may vary systematically across the genders. Rape, sexual molestation, and childhood parental neglect, traumas that are most common among women (Kessler et al., 1995), may occur earlier in life.

Future studies that examine age of onset must consider a prospective

design that takes into account both the participant's entire life history of traumatic events and the development of PTSD-related disorders as they precede, coexist with, or follow the onset of PTSD (Deering et al., 1996). Many studies that have examined the onset of comorbid conditions utilize a retrospective design that is fraught with bias. These studies frequently produce conflicting results (e.g., Mellman et al., 1992; O'Toole, Marshall, Schureck, & Dobson, 1998).

Accuracy of Assessment

Studies that assess comorbidity must use "gold standard" assessment procedures for deriving diagnoses. The instruments used should be demonstrated to be valid and reliable, and researchers must show some interrater reliability within their specific study sample. Many studies have assessed PTSD and comorbid disorders using the Diagnostic Interview Schedule (DIS; e.g., Helzer et al., 1987; Kessler et al., 1995; Lipschitz et al., 1999; North et al., 1994), an instrument designed to be administered by laypersons that does not allow for use of clinical judgment. Other studies have based diagnosis on the clinician-administered version of the Structured Clinical Interview for DSM (SCID; e.g., Shalev et al., 1998), patient-report version of the SCID (e.g., Hubbard et al., 1995), or chart reviews of clinician notes (e.g., Hryvniak, 1989). The lack of consistent measurement methods makes drawing conclusions across studies difficult, particularly because research has documented that the type of assessment instrument used in a particular study has profound effects on the prevalence of disorders revealed (e.g., Wittchen, 1996; Zimmerman & Mattia, 1999b).

The use of non-clinician-administered scales is perhaps most problematic. Whereas these assessment strategies make epidemiological studies feasible, the findings may lack a clinical context. Making accurate diagnoses requires use of clinical judgment and, as such, it is important that the criteria in DSM-IV not be applied mechanically by untrained individuals (American Psychiatric Association, 1994). For example, a patient may have a primary diagnosis of PTSD, and a clinician may conclude that additional GAD symptoms are better accounted for by the hypervigilance symptoms of PTSD. However, in some standard interview formats (e.g., the DIS), this patient would be diagnosed with both PTSD and GAD, even if a clinician would not conceptualize the symptoms in this manner.

Furthermore, DSM-IV includes several exclusion criteria that are necessary to establish boundaries between disorders. For instance, for many conditions, the presence of an underlying physical disorder that could potentially contribute to the expression of symptoms must be ruled out. Thyroid, adrenal, pituitary, parathyroid, and seizure disorders, and multiple sclerosis and mitral valve prolapse can all produce symptoms that may be

attributed to a psychological disorder. The importance of ruling out potential medical complications may be particularly relevant for women. Because so many physical disorders manifest in symptoms of depression, anxiety, and somatization disorder, which are much more common among women, the misdiagnosis of physical disorders as psychiatric in part accounts for women's higher rate of these disorders (Klonoff & Landrine, 1997).

Gender biases in assessment must also be considered in determining comorbidity with PTSD. Ford and Widiger (1989) demonstrated that clinicians might be influenced by stereotyping and sex bias when assigning personality disorders to patients. They found that psychologists significantly failed to diagnose histrionic personality disorder more often in male than in female patients. Furthermore, they failed to diagnose ASPD in female patients more often than in male patients. And, these apparent sex biases were more evident for the female cases. For a fuller discussion on gender issues, assessment, and PTSD, see Cusack et al. (Chapter 6, this volume).

Socioeconomic Status and Ethnicity

Data derived from general psychopathology research underscore the importance of examining mental illness in the context of ethnicity and socioeconomic status. Rates of almost all disorders have been found to decline monotonically with increases in income and education; furthermore, rates of general psychopathology differ across ethnic groups (Kessler et al., 1994). Specifically, African Americans are less likely to be diagnosed with mood disorders, substance use, and lifetime comorbidity compared to Caucasians. In contrast, Hispanics have a higher prevalence of current mood disorders and comorbidity than non-Hispanic whites.

None of the studies in our review on comorbidity included socioeconomic status or ethnicity as factors to consider in making gender comparisons, despite the fact that these attributes likely influence symptom presentation, detection of psychological disorders, likelihood of seeking and receiving treatment, and response to intervention. Future research on diverse populations to address these issues is sorely needed.

Summary

In conclusion, although comorbidity with PTSD has been assessed in a number of studies, gender has been largely ignored, and several complex methodological issues deserve significant attention in future research. Although careful scientific control is needed to determine specific comorbidity with PTSD, these diagnostic issues are important only if they impact treatment in a meaningful and significant way. Thus, we now discuss the potential treatment implications of comorbidity with PTSD among men and women.

TREATMENT IMPLICATIONS

As mentioned earlier, comorbidity of psychological disorders with PTSD has been linked with a more chronic course of the PTSD (Blanchard et al., 1998; Breslau & Davis, 1992; Mcfarlane & Papay, 1992; Zlotnick et al., 1999), more severe comorbid symptoms (Blanchard et al., 1998; Sautter et al., 1999 Shalev et al., 1998; Zimmerman & Mattia, 1999a), and significant functional role impairment (Blanchard et al., 1998; Mollica et al., 1999; Shalev et al., 1998). However, given the lack of research on gender, PTSD, and comorbidity, potential gender differences in these complications have not been fully explored. Given that this area is in its infancy, the delineation of specific treatment recommendations for men compared to women with PTSD and comorbid conditions would be premature, particularly because our review of the literature detected few differences. Instead, in this section, we briefly consider recommendations and findings from other contexts, such as studies on gender differences in psychological treatment in general and recommendations for treating comorbidity with PTSD regardless of gender, that may be potentially important for clinicians who treat men and women with PTSD.

The Impact of Gender on Treatment Delivery

General population studies underscore the importance of considering patient gender in order that a disorder be identified and appropriately treated. Women diagnosed with a psychological disorder are more likely to seek health services than men, despite their relative disadvantage in access to health insurance (Kessler, 1998). Women may also be more likely to be targeted for treatment in primary care settings. Badger et al. (1999) found that male physicians were significantly more likely to explore symptoms of depression and discuss a diagnosis with female compared to male patients.

Given the relatively high rate of comorbid depression in men with PTSD, this gender bias in detection and treatment may be particularly problematic in this population. Health care providers need to be educated about the high rate of depression among traumatized male patients in order to facilitate the detection and appropriate treatment of these disorders. It is recommended that practitioners consider administering a brief screening for depression (e.g., the Beck Depression Inventory–II; Beck, Steer, & Brown, 1996, or the Reynolds Depression Screening Inventory; Reynolds & Kobak, 1998) to the male and female clients they treat for trauma-related disorders.

There is also some evidence for gender bias in the type of treatment offered to men and women in the general population. For instance, gender influences the type of medications prescribed to individuals with psychological disorders. National survey data reveal that women in general are

more likely than men to receive prescriptions for anxiolytics and antidepressants (Hohmann, 1989; Sclar, Robison, Skaer, & Galin, 1998) but are equally likely to receive prescriptions for hypnotics/barbituates and antipsychotics. These gender differences persist even when the influence of symptoms, physician diagnosis, and sociodemographic and health service factors is controlled (Hohmann, 1989). Gender also impacts the probability that a patient in primary care will be referred for mental health treatment. Badger and colleagues (1999) found that both male and female physicians in this setting recommended therapy more often for female than male patients who presented with the same somatic depression.

Potential gender biases in treatment recommendations need to be explored in a PTSD population. It may be that depression in males with PTSD is undertreated. Physicians and mental health care providers should carefully explore the potential utility of antidepressants and psychotherapy among men with a trauma history who present for treatment.

A Functional Approach to Treatment of Comorbid Disorders

Although little is known about the impact of gender on the psychological treatment of comorbid conditions associated with PTSD, the course of treatment will likely be influenced by the conceptual and functional relationship between the comorbid disorders. Formal definitions of comorbidity, based on a medical model, assume that two independent disorders are present simultaneously in an individual and that they each require specific treatment; yet clinical judgment frequently suggests that this is not the case. Many of the theories of comorbidity, as discussed earlier, assume that the trauma plays an important conceptual role in the development of both disorders. These issues (both within PTSD and among other disorders) have led theorists to propose a functional, dimensional alternative to our current classification system (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). The goal of this approach is to identify functional processes that underlie the identifiable signs and symptoms expressed by patients. Thus, the topographical characteristics of a patient's behavior are not the basis for classification; instead, there is a focus on the functional processes thought to have produced and maintained the behaviors.

Wasler and Hayes (1998) proposed that experiential avoidance might be a functional dimension underlying the myriad psychological problems reported by men and women with a history of trauma exposure. Experiential avoidance refers to the attempted avoidance of internal experiences, such as thoughts, feelings, and memories. Wasler and Hayes argue that the symptoms of the disorders that co-occur with PTSD, including, for instance, self-injurious behavior, avoidance, disordered eating, and substance use, might be best understood as attempts to control and avoid internal experiences such as sadness, anxiety, fear, thoughts of worthlessness, and painful memories.

Research on experiential avoidance suggests that there may some gender differences in this construct among clinical samples, with women reporting significantly more avoidance then men (Hayes, Bergan, et al., 1996). However, it is even more likely that the methods used to exert experiential control (e.g., behavioral avoidance, use of substances, disordered eating) will differ between men and women as a result of learning history and gender socialization, although our preliminary investigation suggests fewer gender differences in comorbidity than would be expected. Thus, it may be that the underlying process that produces psychopathological behaviors in men and women is similar, and that treatment directed at this process will be more successful than symptom-based, gender-influenced approaches.

Alarcon, Glover, and Deering (1999) also proposed a model to account for the comorbidity seen with chronic PTSD that does not assume the presence of discrete independent disorders. These authors developed a cascade model of stress response, suggesting that the symptoms expressed by individuals with a history of trauma exposure constantly change over time in response to a variety of interrelated factors operating at different stages. Thus, designating specific comorbid disorders may be an unnecessary and perhaps misleading characterization of the symptom expression of men and women with a trauma history. In other words, comorbidity, in this case, may simply reflect a number of interrelated symptoms that arise from a patient's perceived need to cope with the traumatic event, and the internal and external stressors that have arisen from the experience.

These theories suggest that the function of comorbid conditions and their interrelationship with exposure to the traumatic event require attention when developing a treatment plan for a patient with PTSD and comorbid conditions. Although the development of such treatment approaches has not been extensively discussed in the literature, few important issues have been raised in the literature based on the conceptual models discussed earlier that can guide clinical work in this area. For instance, Falsetti and Resnick (1997) suggested that additional treatment may be indicated before engaging in trauma processing with patients diagnosed with comorbid PTSD and panic disorder. If the patient's fear and avoidance of physical sensations are directly addressed, he or she might be more willing to engage in a trauma processing therapy, such as exposure therapy. Given the gender differences in the prevalence of comorbid panic disorder discussed earlier, addressing this potential fear before initiating a trauma-focused intervention may be particularly warranted for female patients.

Roemer (1997) discussed the potential obstacles to treatment that can be associated with comorbid GAD and PTSD. Based on the findings discussed earlier, GAD appears to be present as a comorbid condition with similar frequencies among men and women with PTSD. Like panic disorder, GAD is associated with a tendency toward wanting to avoid emotional experiences. Thus, a patient with comorbid GAD and PTSD may present

with superficial worries and concerns in a subtle attempt to avoid processing more threatening, trauma-related emotional material in session (Roemer, 1997). Clinicians must be vigilant to observe these avoidance responses and address them directly in order to facilitate the treatment of both disorders.

Men and women with comorbid social phobia and PTSD may also pose distinct treatment challenges. For instance, they may be less likely to accept referral into a PTSD therapy group given their fear of being exposed to the scrutiny of others and speaking in front of a group (Orsillo, 1997). Once in the group, an individual with both social phobia and PTSD may be less likely to actively participate or may be at risk for dropping out prematurely. Addressing these social concerns directly and relating them back to the shame and social rejection associated with the traumatic event may facilitate trauma-focused treatment.

SUMMARY

It has been established that PTSD rarely occurs as a single disorder. Instead, the presence of comorbid psychopathology is the norm. Based on our review of the more general comorbidity literature, there are a number of important gender differences that one might anticipate as impacting the course and treatment of PTSD. The literature on gender issues in PTSD with comorbid mental health disorders is in its infancy. Although a number of studies describe psychological disorders that occur within specific populations (e.g., rape victims, individuals with PTSD), carefully controlled studies are absent. Given the complex methodological issues associated with studying comorbidity, this absence of studies is not surprising. Furthermore, comorbidity may, in some cases, be better understood from a functional rather than a structural viewpoint. Regardless of the classification issues, the multiplicity of symptoms coexisting with PTSD requires more study. Researchers are encouraged to include men and women of varying ethnicities and socioeconomic status in order to expand more fully our understanding of this area.

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